



Environmental Resources, LLC

P.O. Box 5305, Bozeman, Montana 59717 Phone (406) 582-8491 email: ruwaller@gmail.com

March 18, 2019

Allen Schiff
DEQ-PTCS
P.O. Box 200901
Helena, MT 59620

Subject: Corrective Action Work Plan
Herman Oil Co., Medicine Lake, Montana
DEQ Facility ID No. 46-01127
DEQ Release No. 3319, Work Plan 33789

Dear Mr. Schiff:

Environmental Resources, LLC is pleased to submit this Corrective Action Work Plan to outline activities associated with monitoring and remediation of subsurface petroleum contamination at the above referenced petroleum release site.

Site Geology

Site geology is characterized by fine-grained alluvial materials. Surficial soils consisting of approximately 30-35 feet of sandy and silty clay mixed with sand were deposited by Quaternary alluvial systems. Groundwater is encountered at approximately 30 feet below ground surface. Groundwater beneath the site is not potable.

Scope of Work

Proposed tasks to be performed during this phase of investigation include operation of the air injection system under low flow rates, operation of the soil vapor extraction system, groundwater sample collection from monitoring wells MW-1-3 and report preparation. These tasks are designed to prevent risks that the petroleum release may pose to human and environmental receptors. All modifications to this work plan will be discussed with and approved by the DEQ project manager prior to implementation.

Data Collection

Prior to sample collection, water elevation data will be collected from the monitoring wells and recorded in a field notebook. All of the well covers will be opened and the locking compression caps will be removed upon arrival at the project site. The wells will be allowed to equilibrate to the atmosphere for at least 30 minutes prior to measuring static water levels. Following the equilibration period, a thoroughly decontaminated electronic water level indicator will be used to measure the static water level in each well casing. The water level indicator tip will be scrubbed in an Alconox or similar wash solution and triple rinsed with de-ionized water prior to and following each measurement. All of the depth to water measurements will be collected from a reference point used to determine the casing elevation for each well.

Groundwater Sample Collection and Analysis

Groundwater samples will be collected from monitoring wells MW-1-3 in November 2019 and 2020. Following collection of all of the static water level measurements, groundwater sample purging will commence using low flow submersible pump. Purge water from each monitoring well will be constantly monitored for pH, ORP, conductivity, temperature and dissolved oxygen content using field meters. Groundwater sample collection will begin when the all or the majority of the indicator parameter values stabilize.

Each VPH groundwater sample will be decanted into 40-milliliter amber glass sample vials, preserved with hydrochloric acid, sealed with a Teflon cap. Groundwater samples will be placed on ice while awaiting shipment to the analytical laboratory. Sample shipment will occur through Fed Ex originating from Bozeman, Montana. All of the collected groundwater samples will be analyzed for VPH using the Massachusetts Method at Alpine Analytical in Helena, Montana.

Report and Release Closure Plan Preparation

A Release Closure Plan (RCP) will be prepared to outline a process to achieve release closure. The results of the RCP preparation will be included in a Standardized Abbreviated Generic Applications Report (AR-07). The final report will summarize the results of work conducted within the scope of this work plan and will provide recommendations for future corrective action that may be required.

Investigative Methods

Methods practiced during this investigation will follow generally accepted practices of similar consulting firms in the same geographical area. Quality Assurance/ Quality Control methods will be employed throughout all phases of this investigation to ensure meaningful and reproducible results and data.

Health and Safety

Health and safety issues will be addressed throughout this investigation to prevent exposure of site workers and other onsite personnel to potentially hazardous situations and chemical compounds. Several physical hazards will inherently be present throughout the field investigation while heavy equipment is being utilized for soil borings and monitoring well installation. Site specific health and safety precautions and information will be contained in a Health and Safety Plan which will remain onsite during all field activities.

Investigation Derived Waste

Drill cuttings, excess sample materials, drilling fluids, and water removed from a well during installation, development, and aquifer testing and all other investigation derived wastes will be disposed of according to all applicable local, state and federal laws.

Project Costs

Costs associated with this Corrective Action Work Plan are summarized below.

Task 1-Groundwater Monitoring

Groundwater sample collection	6 waters @ \$180 ea.	\$1080.00
Laboratory analysis	6 VPH water @ \$135 ea.	810.00
Sample handling fee	6 samples @ \$10 ea.	60.00

Task 2-Reporting

AR-07 Corrective Action Report	15.0 hrs @ \$100/hr	1500.00
RCP Preparation	6.0 hrs @ \$100/hr	600.00

<u>TOTAL ESTIMATED COST</u>		<u>\$4050.00</u>
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Limitations

This work was performed in accordance with generally accepted practices of other consulting firms conducting similar studies. Environmental Resources, LLC observed that degree of care and skill generally exercised by other consultants under similar conditions. Our findings and conclusions must not be considered as scientific certainties, but as opinions based upon our professional judgment based upon the data gathered during the course of this investigation. Other than this, no warranty is implied or intended.

Submitted by
Environmental Resources, LLC

Robert H. Waller, Principal Geologist